TELEPHONE/TRANSACTION ENTRY DEVICE AND SYSTEM FOR ENTERING TRANSACTION DATA INTO DATABASES

CROSS-REFERENCE TO RELATED APPLICATIONS

This application is a continuation application of and claims priority to U.S. application Ser. No. 11/734,722, filed on Apr. 12, 2007; which is a divisional application of U.S. application Ser. No. 10/947,853, filed on Sept. 23, 2004; which is a continuation-in-part of U.S. application Ser. No. 09/589,814, filed on Jun. 7, 2000, now U.S. Pat. No. 6,973,477; which is a continuation-in-part of U.S. application Ser. No. 09/390,798, filed on Sept. 7, 1999, now U.S. Pat. No. 6,574,314; which is a continuation of U.S. application Ser. No. 08/909,408, filed on Aug. 11, 1997, now U.S. Pat. No. 5,987,103; which is a continuation of U.S. application Ser. No. 08/446,546, filed on May 19, 1995, now U.S. Pat. No. 5,805,676. The disclosure of the prior applications are considered part of (and are incorporated by reference in) the disclosure of this application.

BACKGROUND OF THE INVENTION

1. Field of the Invention

The present invention relates to a system for automatically capturing data at the point of transaction and storing that data in the appropriate database(s), and more particularly, to a data transaction processing system including a transaction entry device which can selectively operate in a telephone mode and a transaction entry mode. In the telephone mode, the transaction entry device operates as a conventional telephone. However, in the transaction entry mode, menus are used to navigate the user to forms which facilitate the entry of data. The entered data and forms together form data transactions which are transmitted to one or more databases for processing and storage. The database(s) also "explodes" the data transactions into their component parts and transmits those component parts to still other databases for processing and storage so that the data in the data transactions automatically updates all current database items affected by such data.

2. Description of the Prior Art

The telephone has become an increasingly versatile instrument. The functionality of telephones has been expanded by incorporating the functions of answering machines, facsimile machines, and the like. Point-of-entry systems have also been developed which incorporate computer processing capabilities into conventional telephones. For example, a computer/telephone apparatus is described in U.S. Pat. Nos. 5,195,130, 5,008,927, and 4,991,199 which configures a telephone as a programmable microcomputer which is operated through the standard telephone 12-key keypad. A programmable gate array is reconfigured to accommodate various types of software which require different hardware configurations but without actually reconfiguring the hardware. The reconfiguration data is received from a network host computer and is used by the programmable microcomputer to emulate the hardware of any of a plurality of service bureaus which communicate with the network host computer. In this manner, the telephone/computer is configured to communicate data to/from any of a number of different service bureaus via conventional telephone lines.

However, telephone/computer systems of the type described in the afore-mentioned patents are typically quite complicated and expensive and are limited by the types of operating software which can be downloaded from the network host computer. Also, such telephone/computer systems are relatively slow since the microcomputer must be reconfigured before it will permit communication with the requested service bureau. Because of these characteristic features, such telephone/computer systems are typically used in public locations and are not efficient for creating point-of-entry transactions in typical commercial or private settings. A point-of-entry transaction system is desired which does not have such limitations and which is operating system independent.

Elimination of the requirement of a conventional operating system and the associated application programs for the microcomputer of a data entry device would greatly decrease the cost of such a device. However, to date, this has not been possible because the operating system is needed to run the application programs which control the data communications and together handle discrete parts of the system. Unfortunately, such application programs require substantial amounts of local memory and substantial processing power for performing the desired functions. Also, the operating systems themselves tend to be quite costly to purchase and maintain.

Accordingly, a data entry system is desired which does not have the inherent limitations of conventional point-of-entry systems such as the requirement of a standard operating system for communication with a remote service bureau or file server. A data entry device and associated system is desired which performs a minimal amount of processing at the data entry device so that the data entry device may be as simple and inexpensive as possible, thereby bringing the cost of such a device into a range suitable for most commercial and private uses. It is also preferable that such a data entry device provide a wide range of functionality without requiring a local operating system program and a plurality of applications programs for implementing each function. The present invention has been designed to meet these needs.

SUMMARY OF THE INVENTION

The system which meets the above-mentioned needs in the art includes a transaction entry device that permits the user to organize and control all aspects of his or her personal transactions as well as any transactions that may occur in an office setting. In its simplest terms, the transaction entry device formats input data into a data transaction having content which is dependent upon the type of application to which the associated data pertains. These data transactions are then transferred to a local or remote database server which "explodes" each data transaction into its component parts for updating all databases containing data to which the data in the component parts pertain. In this "transaction entry mode" the transaction entry device of the invention functions as a multipurpose workstation. However, since the data transactions are created without the use of an operating system or application programs, the transaction entry device is quite simple and inexpensive and may be readily integrated with the customer's desktop telephone or portable telephone.

The present invention combines computer technology and telephone technology to allow transaction data to be captured at the point of initiation of the transaction. The transaction entry device is integrated into a conventional telephone which acts as either a normal telephone in a telephone mode or as a transaction entry device in a transaction entry mode. When in telephone mode, the telephone operates in a conventional manner. However, when in transaction entry mode, the transaction entry device is driven by a microprocessor which is, in turn, driven by an operating system independent transaction